Monitoring, Management and Mitigation Programs Administered by the Nevada Division of Water Resources

NWRA 2014 Annual Conference
Rick Felling
Nevada Division of Water Resources

Mission Statement

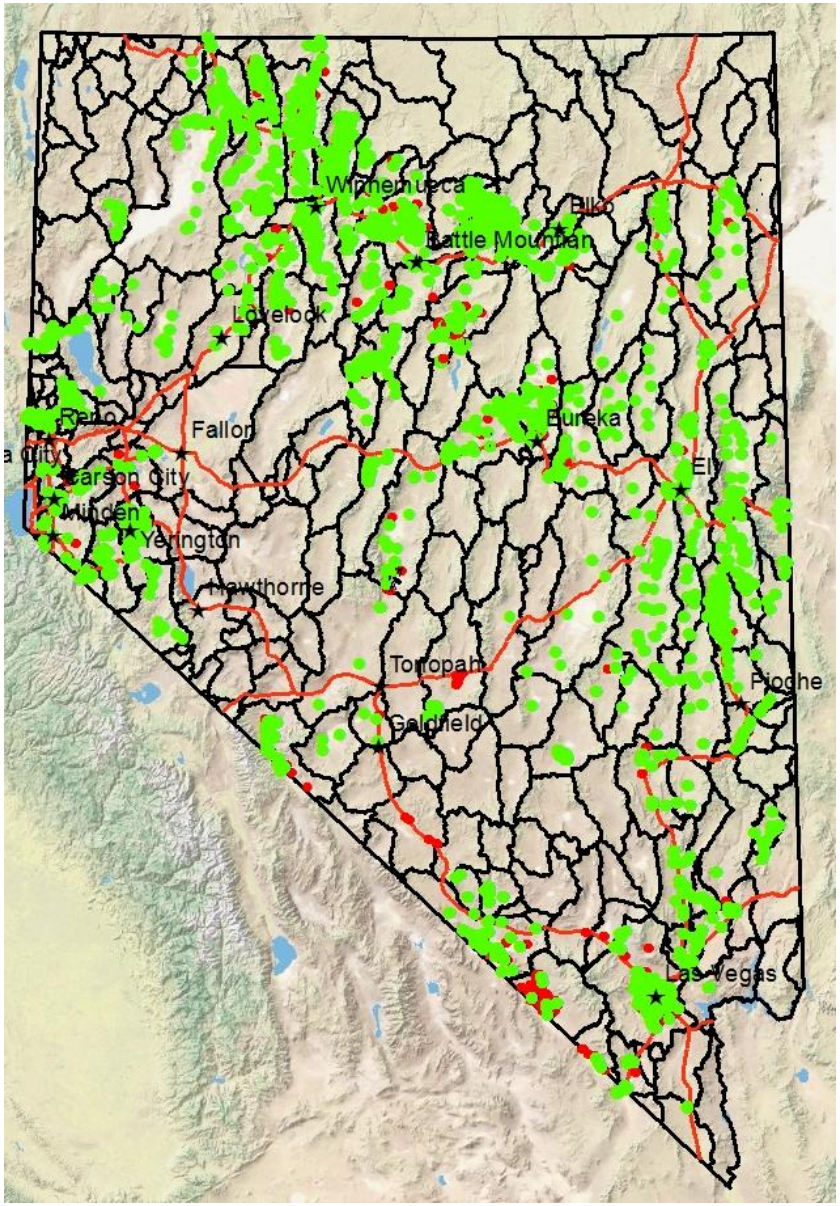
The mission of the Nevada Division of Water Resources is to conserve, protect, manage and enhance the State's water resources for Nevada's citizens through the appropriation and reallocation of the public waters.

3M Programs Administered by the State Engineer's Office

- Active monitoring programs
  - General monitoring
  - Project-based programs
- 3M Programs
  - Why they are needed
  - Design and structure
  - Future of 3M programs

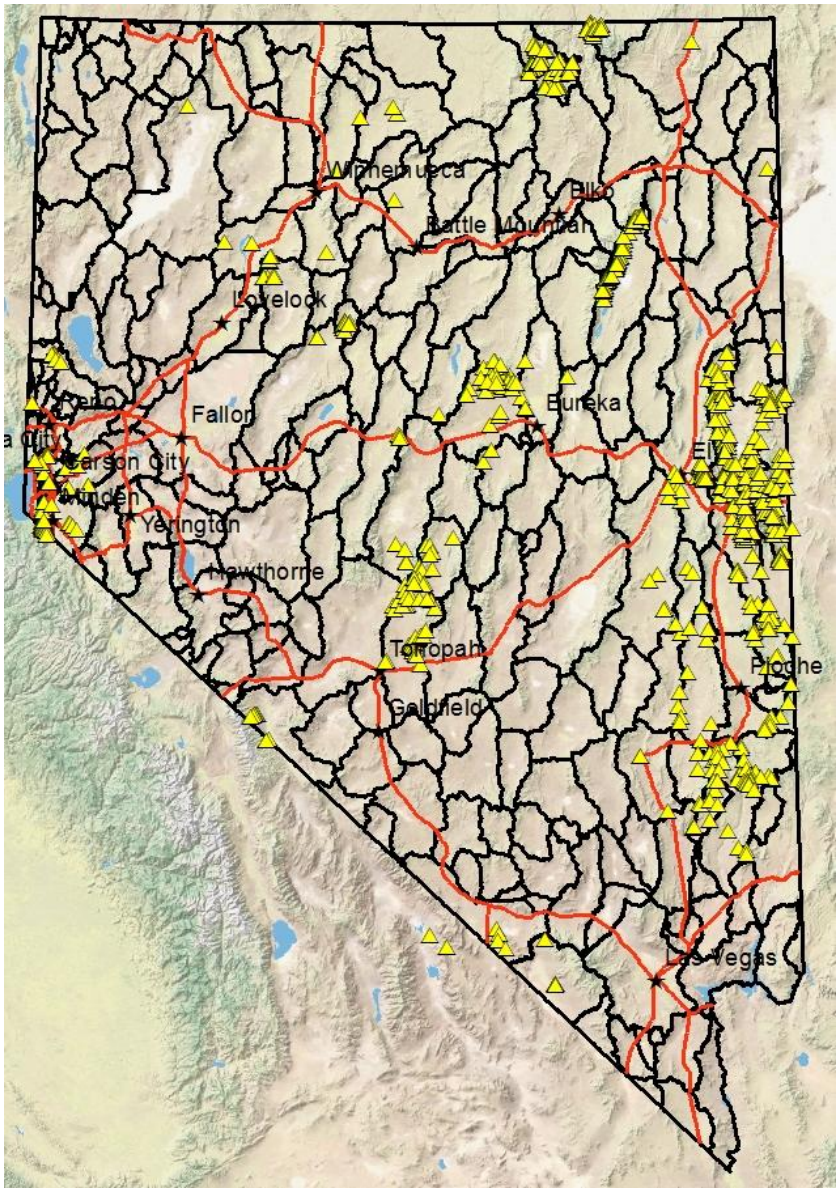
Active Monitoring Programs

- Groundwater monitoring (http://water.nv.gov/mapping)
  - Groundwater levels since 1950's
  - Measure water levels in ~1,900 wells
  - Water levels reported in ~1,200 wells



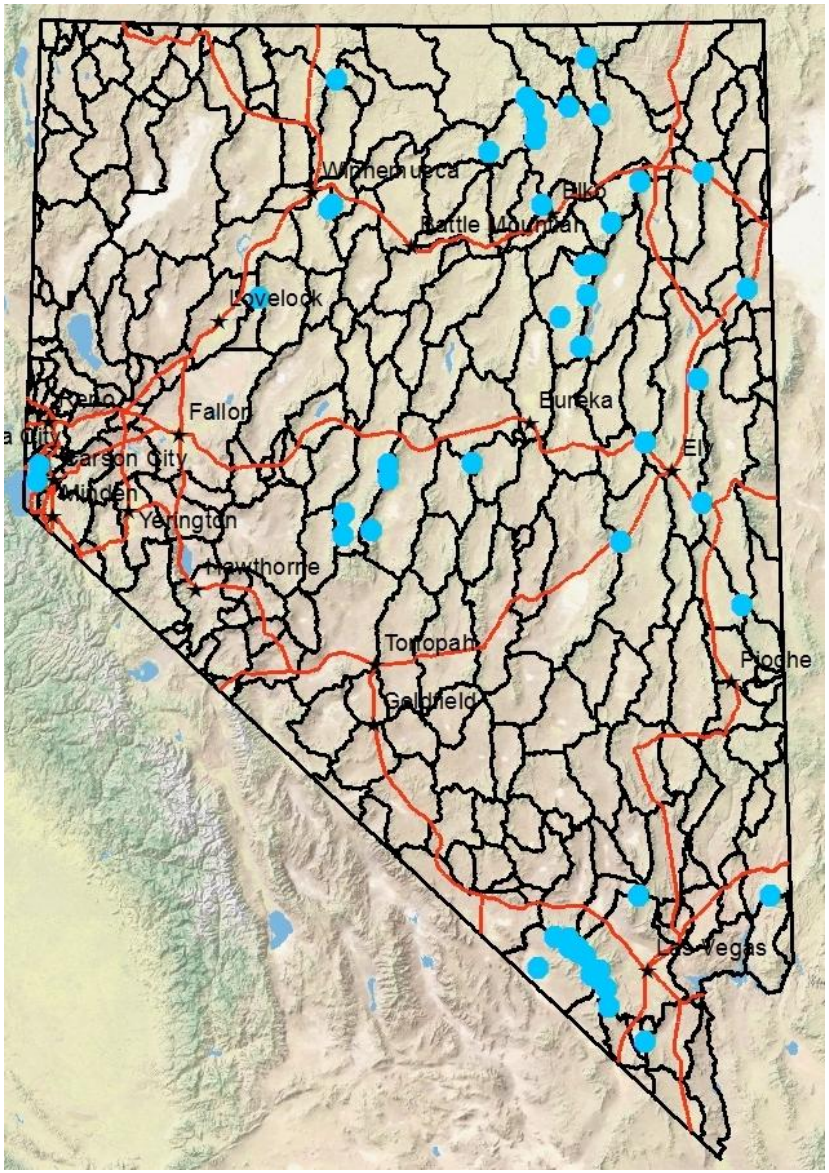
Active Monitoring Programs

- Surface water monitoring (http://water.nv.gov/mapping)
  - Stream and spring flow data
  - 900 sites in database
  - Include ongoing measurements, PBUs, reported by others



Active Monitoring Programs

- Precipitation monitoring (http://water.nv.gov/mapping)
  - High altitude precipitation
  - 50+ sites
  - 33 currently measured
  - Data collected since 1940's
  - Provided to NV State Climate Office



Active Monitoring Programs

Links | Contact Us

State of Nevada
Division of Water Resources

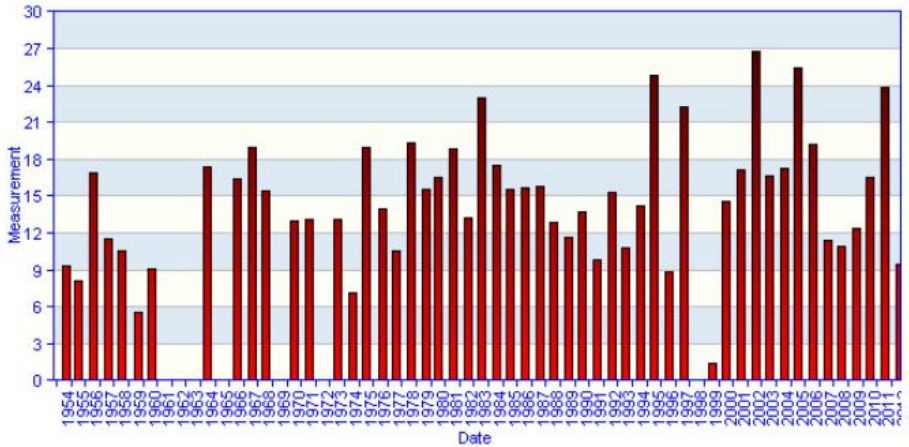
Home | Forms | Water Rights | Programs | Mapping & Data | Hearings | FAQ

PRECIPITATION DATA

Site information for Schellborne

Basin:	179 - Steptoe Valley	County:	White Pine
Latitude:	39.80548	Elevation:	7580 ft.
Longitude:	-114.64922	Reporting Period:	10/06/1953 - Present
Geographic Area:	Schell Creek Range		

Display Interim Data: ☐

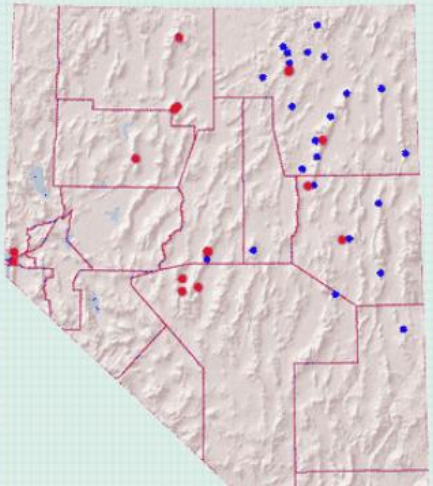


Current Stations By Name:
Please select a station

Historical Stations By Name:
Please select a station

Stations By County:
Please select a county

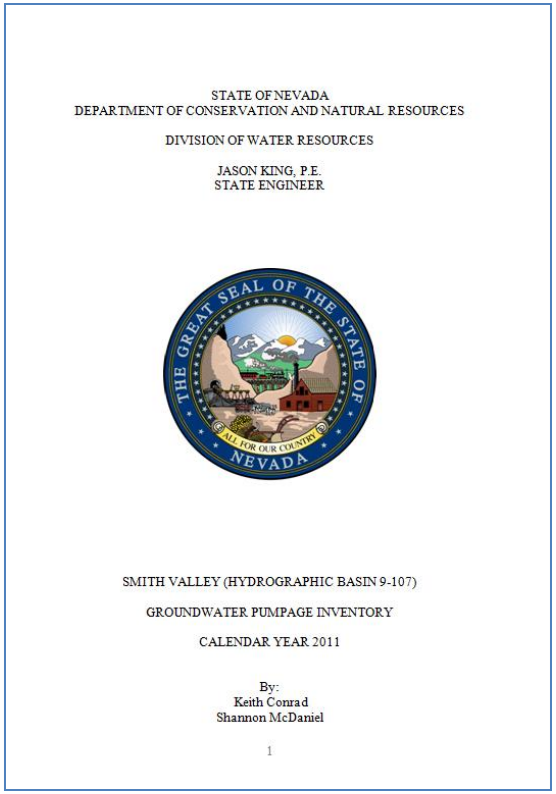
Legend:
Active Sites
Inactive Sites



STATE ENGINEER
STATE OF NEVADA

Active Monitoring Programs

- Water use monitoring (http://water.nv.gov/mapping)
  - Pumpage Inventories
  - Crop Inventories



STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

DIVISION OF WATER RESOURCES

JASON KING, P.E.
STATE ENGINEER

SMITH VALLEY (HYDROGRAPHIC BASIN 9-107)

GROUNDWATER PUMPAGE INVENTORY

CALENDAR YEAR 2011

By:
Keith Conrad
Shannon McDaniel

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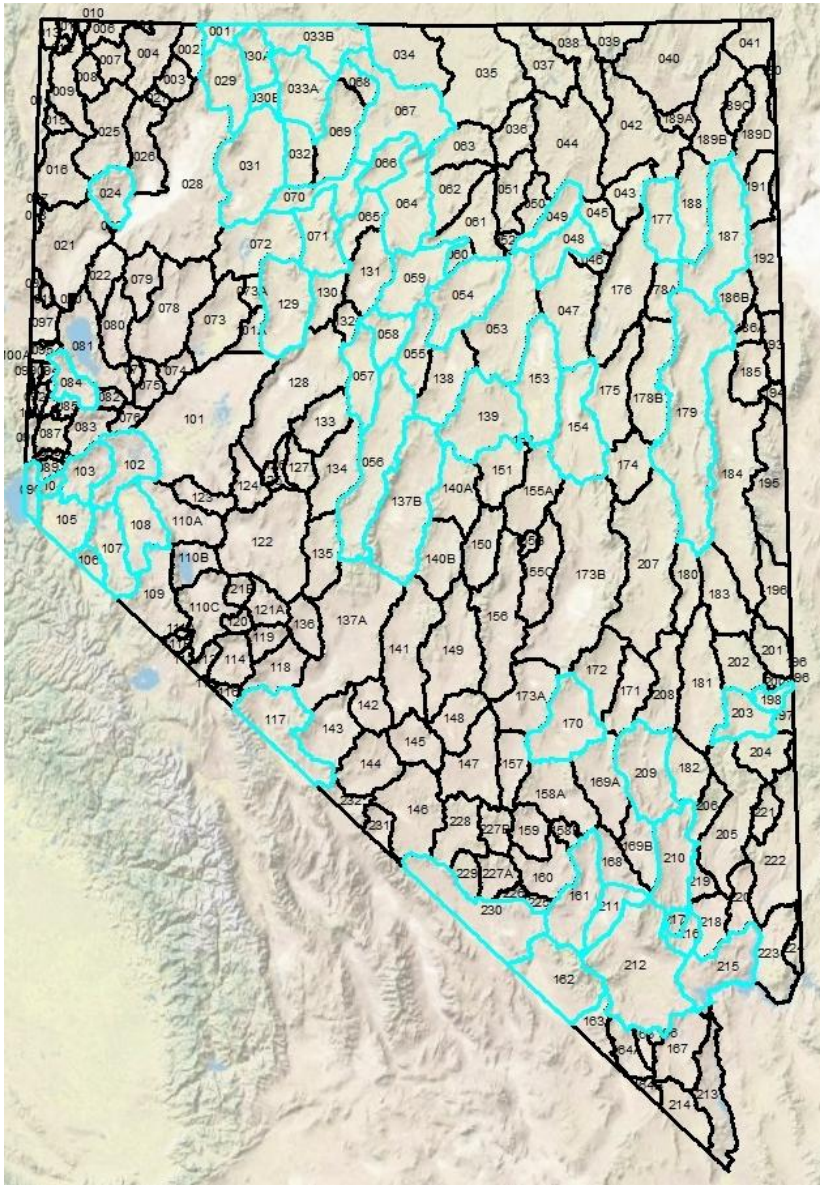
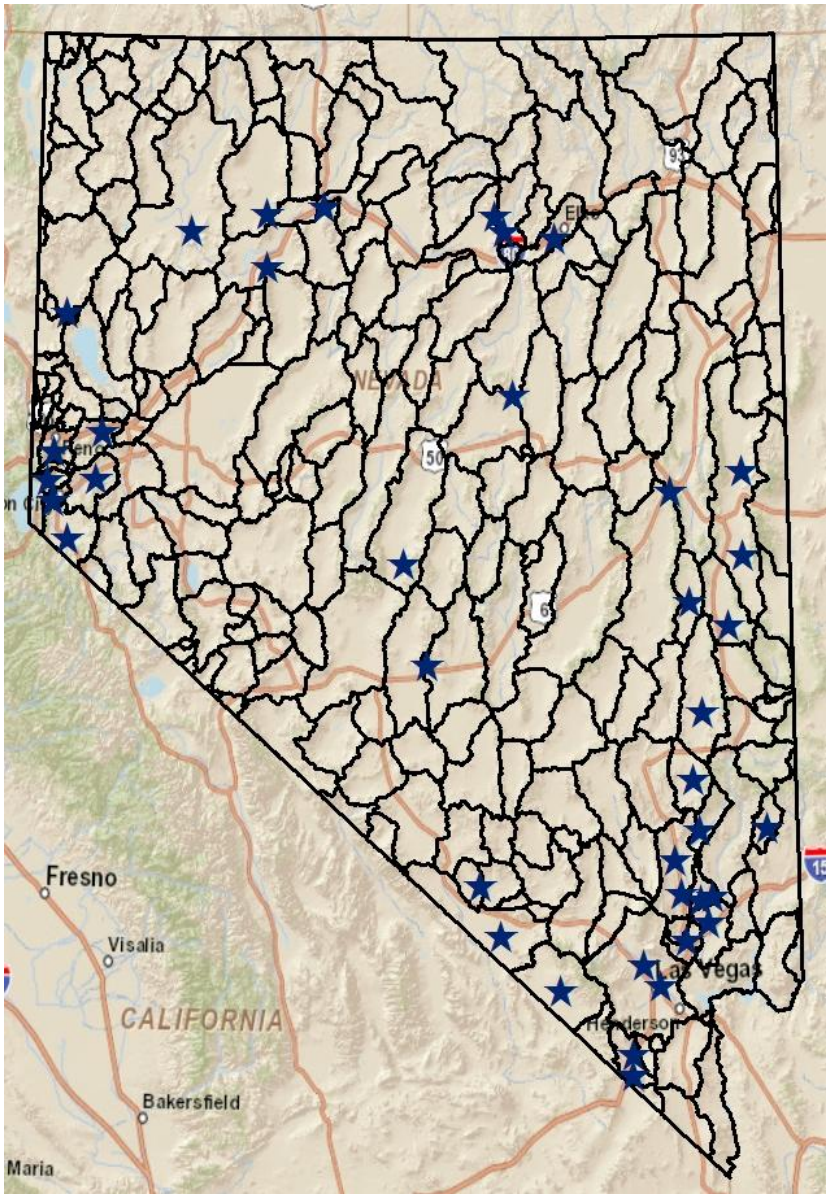


Active Monitoring Programs

- Statewide monitoring projects
  - 44 active projects
  - Only 3 “true” 3M plans
    - Spring Valley
    - CDD
    - Mt. Hope
  - Other MPs often also address management and mitigation options



3M Programs

- Need for 3M programs rather than traditional monitoring plans
  - Large projects
  - Complex, regional hydrologic systems
  - Widespread effects
  - Extremely long time frames
  - Environmental issues
  - A mechanism for stakeholders to protect their interests where NV water law is silent

3M Programs

- Environmental issues
  - NRS 533.370(3)(c) Interbasin Transfers
  - Requires that the proposed action be environmentally sound as it relates to the basin from which the water is exported.
  - “Environmentally sound” is not defined
  - Relates to water-dependent ecosystems (surface or gw)
    - Water for wildlife
    - Endangered species
    - Noxious or invasive weeds (NRS 555.130 to 201)
    - Ensure plant succession

3M Programs

- Other benefits
  - Involve stakeholders
  - Promotes rigorous assessment of pertinent issues
  - Promotes transparency
  - Forces participants to plan for possible outcomes
    - Establish monitoring protocols
    - Action criteria for management or mitigation
    - Evaluate and prepare for management options
    - Assess feasibility of mitigation

3M Programs

- Challenges
  - Addressing complex hydrologic and ecosystems
  - Crafting 3M plans that address participants/public interests
  - Legal complications - lawsuits
    - Which areas to include
    - Action criteria identified before application approval
    - Management and mitigation alternatives fully formulated before approval

3M Programs

- SNWA Groundwater Project
  - Biologic and hydrologic technical teams
  - Executive oversight committee
  - NSE authority over Hydrologic and Biologic per NRS
  - Both Biologic and Hydrologic plans are adaptive
  - Require 5-years of baseline data
  - Staged groundwater development

Traditional decision-making approaches have often failed to achieve objectives for complex problems in large systems…adaptive management is the best approach. B.L.Johnson, 1999, Ecology and Society, V.3, No. 2

3M Programs

- SNWA Groundwater Project
  - Biological Plan
    - Protect federal resources from unreasonable adverse effects
    - Identify species and habitats of concern
    - Select indicators to monitor
    - Develop monitoring protocols
    - Develop criteria for management/mitigation action
    - Peer reviewed 3M Plan
    - Modify plan as needed
    - Includes NSE environmentally sound requirement
    - Biologic and hydrologic plans separate but linked

3M Programs

- SNWA Groundwater Project –
  - Hydrologic Plan
    - Monitor wells, springs and streams
    - Establish baseline conditions/range
    - Reassess sites as warranted
    - Modify if new production wells are permitted
    - Build and update basin-scale groundwater flow model every five years
    - Provide advanced warning
    - Develop management strategies to prevent conflict
    - Mitigation is last resort and not inevitable

3M Programs

- Future of 3M plans
  - SOP for large projects and all interbasin transfers?
  - More stakeholder participation/input
  - Counties to participate per NRS 533.353
  - Adaptive management approach encouraged
  - Multiple plans to address specific interests (where NRS silent)

QUESTIONS?